



FIG. 1

200220-02267001

Applicant : Randy L. Walter  
 For : AIRPORT MAP DISPLAY SYSTEM AND DATA INTERCHANGE METHOD  
 Atty. Docket No. : SM133 P-305  
 Express Mail No. : EV021497360US  
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FIG. 2

WORD #	SS M	DATA	RANGE	RESOLUTION	LABEL
1	01	LATITUDE POINT 1	20 BITS	.00017 DEG	100 FOR ACT TAXI PATH
2	00	LONGITUDE POINT 1	20 BITS	.00017 DEG	
3	00	LATITUDE POINT 2	20 BITS	.00017 DEG	
4	00	LONGITUDE POINT 2	20 BITS	.00017 DEG	
5	11	CONIC SUBTENDED ANGLE	12 BITS	.0439 DEG	300 FOR
6	11	CONIC RADIUS	15 BITS	.0078125 nm	MOD TAXI
7	11	CONIC INITIAL ANGLE	12 BITS	.0439 DEG	PATH
10	00	LATITUDE POINT 3	20 BITS	.00017 DEG	040 FOR
11	00	LONGITUDE POINT 3	20 BITS	.00017 DEG	TAXIWAY
.	.	.			300 FOR
N	00	LATITUDE POINT 1	20 BITS	.00017 DEG	RUNWAY
N+1	10	LONGITUDE POINT 1	20 BITS	.00017 DEG	

FIG. 3

WORD #	SS M	DATA	RANGE	RESOLUTION	LABEL
1	01	LATITUDE	20 BITS	.00017 DEG	104 FOR RUNWAY IDENT 004 FOR RUNWAY IDENT
2	00	LONGITUDE	20 BITS	.00017 DEG	
3	00	TEXT (3 ASCII)	7 BITS EACH	—	
4	10	TEXT (3 ASCII)	7 BITS EACH	—	

200220' 0226' 400'

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1.  $\Delta \text{Lat} = (\text{Lat} - \text{Ref Lat}) \times \text{Earth Radius}$
2.  $\Delta \text{Lon} = (\text{Lon} - \text{Ref Lon}) \times \cos((\text{Lat} + \text{Ref Lat})/2)$
3.  $\text{Course} = \arctan(\Delta \text{Lon} / \Delta \text{Lat})$
4.  $\text{Distance} = \sqrt{(\Delta \text{Lat})^2 + (\Delta \text{Lon})^2}$
5.  $\text{Scale} = \text{Distance} \times 10$
6.  $\text{New Lat} = \text{Ref Lat} + \text{Scale} \times \cos(\text{Course}) / \text{Earth Radius}$
7.  $\text{New Lon} = \text{Ref Lon} + \text{Scale} \times \sin(\text{Course}) / (\text{Earth Radius} \times \cos((\text{Ref Lat} + \text{New Lat})/2))$

FIG. 4

